
TP/48
INSTALLING
and
OPERATING
INSTRUCTIONS

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Installing and Operating T/P48 Adana Power and Treadle Machines

Location of Parts

When reference is made to position of components throughout these instructions it is assumed that one is looking at the machine from the feeding position, with the flywheel on the left, unless it is specifically stated to the contrary.

Direction of Rotation

Wherever mention is made to turning the machine, this must be done only by revolving the flywheel in the direction of the arrow on its side, *i.e.* towards the operator.

Unpacking

If the machine is received in export packing, the case will be marked "This side up". To unpack, support the case 2 feet from the ground with the side marked "Open here" in front. The main body of the machine will then be on its side with its base facing you. The legs of the machine can now be fastened to the body. If distinctive colour markings are shown, these should be matched to ensure correct assembly. After taking out the flywheel, the machine can be removed complete from the case. Bolts, etc., will be found in their correct positions on the machine; spanners and Allen keys are provided.

Roller Safety Plates

Next see that the roller safety plates are in position. (Illustration No. 1.)

Cleaning

The machine should now be thoroughly cleaned with paraffin, particular attention being given to the main gear and pinion. See that all teeth are free from obstruction. This is very important. If the machine is not to be fitted with an automatic hand guard, the flywheel can now be attached and secured by the grub screws provided. Making sure that the key is properly seated and not tipped will facilitate this operation.

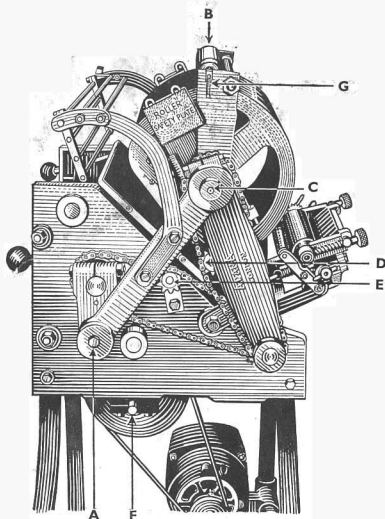


Illustration No. 1

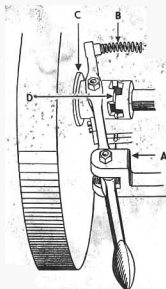


Illustration No. 2

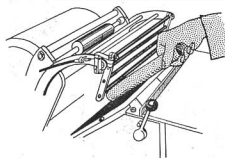


Illustration No. 4

Hand Guard Clutch

In the case of hand guard machines the guard clutch mechanism on the left side of the machine will have been partly dismantled for safe packing: the handle being released from its bearing and tied to the main frame. This must next be assembled by bolting to the hand guard clutch bracket. (Illustration No. 2A.) Tighten sufficiently to prevent undue slackness, but not to a degree that will cause sluggish action. Tied to the handle will be found the hand guard clutch compression spring which must be inserted between the boss on the main frame and the boss on the handle. (Illustration No. 2B.)

The rubber impact washer should now be fitted; this acts as a cushion between the clutch and the flywheel when the hand guard is tripped. (Illustration 2C.) The flywheel must now be fitted in such a position that when the hand guard has been tripped there is a clearance of up to 1/16" (not more) between the dog clutch faces. Two visiting cards will serve as a gauge. This will allow the flywheel and shaft to revolve freely, whilst the type bed, etc., is stationary. (Illustration No. 2D.) Lock flywheel grub screws tightly.

Hand Guard Testing

Revolve flywheel by hand until the clutch dogs can be meshed by the lever. Now push the hand guard gate until the mechanism trips. Repeat this several times to ensure that the dogs disengage freely and fully, making sure each time that the flywheel can be pulled round. Now remesh clutch and test under power by inserting a roll of stout paper between the platen and the gate. (Illustration No. 4.) **ON NO ACCOUNT USE HANDS FOR TESTING ON ASSEMBLY.** The machine will stop instantly with the exception of the flywheel and shaft; do not re-engage dog clutch while these are still in motion. Should any adjustment be required, instructions will be found under "Fitting Hand Guards", page 20.

Oiling

Oil machine thoroughly at oil holes which, where feasible, are marked with red paint. There are two inside each side frame for the main shafts which are more accessible when the platen is raised. In the power model the bronze driving pinion is fed through its shaft from a hole outside the machine on the right-hand side. (Illustration No. 1F.) The vibrator shaft will require a light smear where the roller reciprocates. The machine should be oiled daily when in regular use.

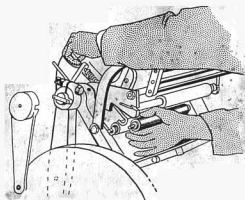


Illustration No. 5

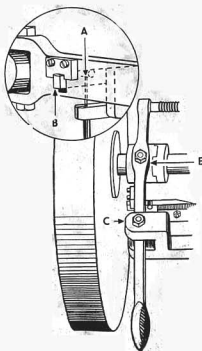


Illustration No. 3

Fitting Rollers

Move flywheel in the direction of the arrow until the roller hooks are midway across the type bed, raise the hooks and remove safety plates, place rollers in position, making sure that the hooks are facing one another. These hooks require a spot of oil fairly frequently where they slide in the roller carriage brackets and where they bear on the roller spindles. Turn flywheel by hand to ensure that the rollers are working smoothly round the cylinder and the vibrator roller is moving from side to side. **ALWAYS REPLACE SAFETY PLATES AFTER REMOVING ROLLERS.** Damage may result if the machine is rotated without either the rollers or the safety plates in position.

Operating

It is assumed that the general principles of printing are known, but the following notes are given in case they should be required.

Inking Up

Place a knife full of ink on to a sheet of plate glass or flat metal not smaller than 9in. by 6in. and roll it thoroughly with hand roller. It is best to push the roller against the ink and roll it out little by little. Next transfer the ink on the roller to the cylinder by rolling both round and across. Even when using an ink duct, to employ this method will save time. Start the machine, allowing the rollers to thoroughly and evenly distribute the ink. Only then should the chase be put in the machine.

You will notice that the chase is fitted with two studs which slide easily into slots on either side of the bearers and settle snugly to the bed. If necessary (*i.e.* for very accurate colour register) the grub screws of the bearers at the side may be tightened to prevent any slight movement. Before fitting chase be certain that the impression throw-off handle is pulled downwards, so that the platen will be clear of the type face before printing.

Adjusting Gripper Fingers

The gripper fingers should be kept one each side of the machine when not specifically set to a forme. Should they be out of position with a forme, the type face may be ruined when the platen is closed.

Make-Ready

The machine on leaving the works has a make-ready of .040 (or one millimetre), which is approximately fourteen sheets of ordinary newsprint. This is set for a full forme, such as the test print sent with the machine. The lighter the forme used, the less make-ready, coming down to eight sheets, or less for an ordinary visiting card.

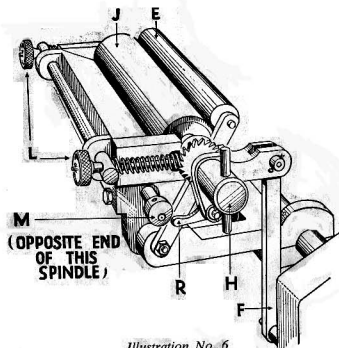


Illustration No. 6

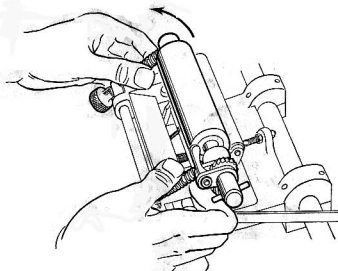


Illustration No. 8

Ink Duct Position

When an ink duct is supplied it should be checked for position in order that the full use of its automatic drive, throw off, and easy cleaning features may be obtained. Failure to observe the following instructions may result in damage to the duct and the roller carriage assembly. The duct is clamped to the rock-shaft by four bolts (Illustration No. 7A) and its attitude should be such that the vibrator roller engages with the rubber transfer roller (Illustration No. 6E) by about $1/16''$. (Illustration No. 7.) Turn the flywheel by hand and check this setting. It will be noted that this transfer roller can be thrown on and off by rotating knob (Illustration No. 6M); when it is in this latter position it should be clear of the vibrator roller. As a safety measure the duct is spring loaded forward to its normal position for two reasons: (1) Should the machine be accidentally turned backwards with the transfer roller thrown on, the trough assembly can hinge backwards out of harm's way. (2) Should the two flow adjusting knobs be too tight (Illustration No. 6L) when the driving link (Illustration No. 6F) imparts its thrust, the duct again will hinge backwards as the ink roller will be unable to index.

Filling Duct and Adjusting Flow

Place sufficient ink in the trough for it to flow from end to end. The amount can be estimated after experience in order to save wastage when cleaning down. Rotate the duct roller (Illustration No. 6J) by turning knob (Illustration No. 6H) anti-clockwise until a good film of ink is evenly covering it, using adjusting knobs (Illustration No. 6L) to accomplish this; drop transfer roller by rotating the knob provided. (Illustration Nos. 6E and 6M.) Now run the machine with the ink rollers in position, but no forme, until the ink cylinder is sufficiently covered. It will be necessary when printing to regulate the adjusting knobs according to the amount of type set.

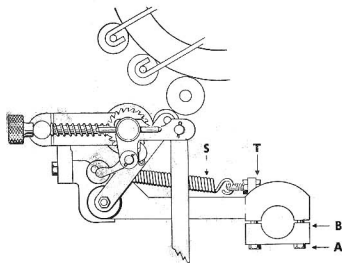


Illustration No. 7

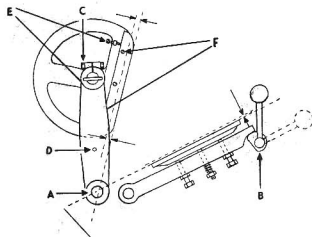


Illustration No. 12

Cleaning Ink Duct

After use the ink duct should be cleaned. First throw off the transfer roller, then remove as much ink as possible with a palette knife, undo the two adjusting knobs (Illustration No. 6L) as far as the retaining split pins will allow, ease the ink roller carefully forward and hinge upward. (Illustration No. 8.) It will remain suspended, leaving everything clear for washing. Should it be desired to remove the ratchet gear, this can be done by unscrewing the knob. (Illustration No. 6H.) THIS HAS A LEFT-HAND THREAD. When replacing the duct roller it is essential to see that it is kept parallel with the trough; it will not then be necessary to force it into position.

Care of Rollers

Always clean them before and after use. Never leave on machine. Do not expose them to heat, strong sunshine or undue humidity. Keep roller composition free from contact when storing, and free from indentations and cuts. If not being used for some time, smear with a little vaseline over the entire surface. This must be completely removed with a clean cloth dipped in paraffin before using. Clean immediately when changing colour.

The following instructions are given in case, through mischance or damage in transit, adjustment or replacement of parts may be necessary. However, in the ordinary course they should be read over carefully and the salient points noted. Thus you will glean much valuable knowledge of your machine's mechanical construction and its operation.

Cylinder Setting

In case the cylinder setting is disturbed, it is necessary to explain the principle of resetting angular position. Referring to Illustration No. 12, it will be noted that a line extended from the type face should strike the centre of the cylinder rocking shaft (marked A). This, of course, will remain constant, irrespective of the position of the cylinder.

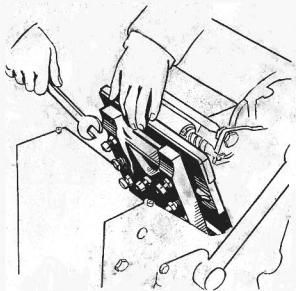


Illustration No. 10

Platen Setting or Re-adjustment

The platen face is set to the type face on cylinder (after allowing for normal make-ready) and in line with rocking shaft centre referred to above, when impression throw-off handle (Illustration 12B) is in upper or printing position.

Should it be found necessary to adjust cylinder, make sure that the two cylinder support nuts and bolts (Illustration No. 12C) are locked very firmly (two spanners may be necessary), and the cylinder retaining arm bolt (Illustration No. 12D) locked up after final checking.

As mentioned, the machine is set on leaving the works (reference page 6) to print a fairly heavy forme, using fourteen sheets of make-ready, and varying printing pressures are obtained by releasing the top bale, lifting top sheet and adding or removing sheets of paper.

The set of the platen for pressure and squareness to bed is controlled by adjusting screws below platen support (platen and support can be lifted to expose the screws—Illustration No. 10). Only in exceptional circumstances need adjusting screws be touched or altered, such as for the printing on abnormally thick card or board, or in the event of necessity to square up platen through uneven printing (shown by heavy or insufficient pressure of print on possibly a corner, side or centre of sheet).

Should test print show light pressure at centre or any portion of forme before making any platen adjustment, make sure that type is obtaining sufficient ink from rollers—for shrunk rollers would not reach the type face and consequently would not ink same. This could give the impression that platen was out of parallel with bed. Swollen or distorted rollers would show other defects.

In any case, before contemplating platen adjustment, refer to the section on roller condition and to the adjustment of roller bearers.

Adjustment of Platen

It will be observed that five screws take the printing pressure. These are threaded into the platen support—four at corners, one at centre. On all five screws are lock nuts. Another two screws or studs are anchored into platen with two compression springs in position behind the nuts. The tightening of these exerts a downward pressure of the platen on to the five adjusting screws mentioned.

Printing Heavy Board

To adjust platen for printing thick board it is necessary first to unlock lock nuts (two spanners are supplied and essential for this operation).

To do this, place one spanner on head of screw and with the other spanner slacken the lock nut without allowing screw to turn. Now carefully turn screws an equal amount. One turn equals $1/16"$.

It is advisable to obtain a reasonably accurate measurement of thickness of the material on which you are printing before any adjustment is carried out, e.g. 32 boards to an inch would require one half turn of screw.

The test print should now be taken. A slight final adjustment may be necessary to obtain a perfect print.

It is essential to print with a minimum of pressure, in every case.

A note to remember is that slackening the screws on the heavy side is preferable to raising screws on light side. After the operator has obtained even pressure as proved by test prints, lock the nuts to underside face of platen support, again taking care that the screws are not revolved during this process. Two spanners are again required, one holding the head of the bolt stationary whilst locking the nut. It is advisable when taking test prints during platen setting operation to have centre screw slackened off a half turn.

Finally, adjust centre screw. This point is emphasised as there is a tendency to have centre screw too high with a consequent rock or unevenness of platen on other screws.

Re-setting of Platen

When re-setting platen it is necessary to have a fairly full forme of type of an even spread in machine or, alternatively, five small line blocks—one in each corner and one in centre—for carrying out this operation.

Use eight sheets of paper as preliminary make-ready, clip down bale. Now close machine with impression lever on until bed is in its lowest position.

Now screw up the four adjusting screws with a fairly heavy finger pressure until platen is in even contact with type forme, do not use spanner; making certain that the lock nuts on the adjusting screws are well back, otherwise screws will lock prematurely. The proper sequence should be top left adjusting screw, then bottom right; top right, then bottom left. This is necessary to obtain even pressure.

The centre screw should then be brought into contact as mentioned, all five nuts locked up carefully, paying particular care that the adjusting screws are not moved in the process.

If six sheets of paper are added to the make-ready, making fourteen altogether, the machine should be ready for printing of fairly heavy forme. Once the platen of machine is squared up do not disturb it. Then it is a question of the usual make-ready.

It will be understood that the pressure required for a full, solid set forme would be far greater than for an ordinary business card, so the make-ready varies considerably according to the "weight" of the matter to be printed—a variance of from fourteen sheets ordinary newsprint for a full forme to merely four or eight sheets for a small card.

Adjustment of Bearer Plates

The function of the bearer plates is to ensure that the inking rollers are able to transfer the correct amount of colour to the forme. As rollers age it will generally be found that they shrink, therefore it will then be necessary to let these bearers back.

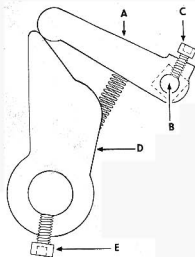


Illustration No. 13

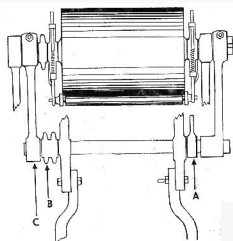


Illustration No. 14

Adjusting Gripper Cam

Revolve the machine until the roller carriage is at the bottom of the cylinder, then slacken the knurled headed screws quarter to half a turn (Illustration No. 12E), loosen the two flush fitted screws (Illustration No. 12F), push the bearers back and tighten the screws again. When new rollers are fitted it is likely that the bearers will need bringing it forward. As a rough guide it may be taken that a forme extending from one side of the chase to the other will lift the gudgeons clear of the bearers by about .010" (three or four thicknesses of printing paper). This may be observed by turning the machine over by hand.

Close machine to the impression position, when back face of cam should be in a vertical position (see Illustration No. 13). Should this require re-setting, make sure that side adjustment, i.e. relative position between face of cam (Illustration No. 14A) and frame, is correct.

To check same, pull rocking shaft towards you, so that the twin sprockets (Illustration No. 14B) on opposite side of machine are both hard against the side frame face.

Now lock gripper cam (Illustration No. 14A), leaving a clearance of about .015 to .020" (thickness of a visiting card) between boss on gripper cam face and side frame.

Re-setting Cam Follower of Gripper Bar

It may be necessary to re-set gripper bar cam follower (Illustration No. 13A) on the gripper bar. (Illustration No. 13B.) To do so, slacken screw on cam follower, close machine with impression off, press gripper fingers on to the platen, then secure to shaft by tightening Allen screw (Illustration No. 13C) while follower is in contact and resting on gripper cam. (Illustration No. 13D.)

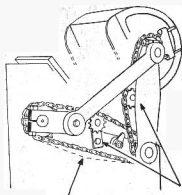


Illustration No. 15

Timing Roller Carriage

When replacing chains the utmost care must be taken to prevent mistiming, as this would cause damage if the machine were started up (or even turned by hand) by trapping the rollers between platen and bed. The angular setting of roller carriage in relation to opening and closing of cylinder is of fundamental importance.

To obtain the correct timing, the machine must be slowly turned by hand in its proper direction of rotation, until the crank pin is at its lowest position and vertically below the main shaft. (Illustration No. 1A.) Hold the roller carriage so that the vibrator roller (Illustration No. 1B) is on top of the inking cylinder and vertically above the ink cylinder shaft (refer to Illustration No. 1C).

The chain then can be fitted with safety, and care should be taken that chains are adjusted before checking.

Chain Adjustment and Replacement

Referring to Illustration No. 15, it will be noted that jockey sprockets are incorporated in the chain drives to take up chain slack, as it is essential for satisfactory operation of machine that tension of chains should be correct and constant. It should be mentioned here that standard $\frac{1}{2}$ in. by $\frac{1}{4}$ in. cycle chains are used, therefore new chains or replacements can be obtained easily from any cycle dealer. If normal care is taken and chains are kept lubricated with oil or graphite, many years of life should be had without replacements.

Should machine be operated with undue slackness in the chain drives the roller carriage will revolve with an intermittent or jerky motion as it passes from the cylinder to the bearers. Jockey sprockets should be adjusted so that the side of the chains opposite the jockey sprockets are reasonably tight. The best way to test tension is to feel the maximum up and down movement in the centre of chain on opposite side to the jockey sprocket. The chain should be fairly rigid.

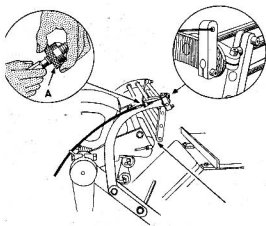


Illustration No. 9

Additions and Modifications

Fitting Handguards

The following are the component parts of the automatic guard :—

UNIT I.

The safety gate.
Side rails for fixing to crank levers.
Fixing bolts.

UNIT II.

Clutch movement.
Bowden cable.
Trip plate.
Trip plate bracket.
Lever spring and button.
Driving shaft.
Cylinder support arm bolt nuts and cable guide.
Locking bolt and cable guide loop.
Sliding dog pinion.
Dog clutch sleeve, together with bronze half-shoes (with lever).
Impact buffer (rubber).

Check these over before dismantling machine. To fit the automatic guards first remove flywheel and release collars on driving shaft pinion inside frame when same can be withdrawn.

Thread new shaft complete with clutch unit and lever through the left-hand bearing, the main gear being threaded on shaft before inserting in right-hand side bearing and finally fixing.

The lever handle should now be pointed towards front of machine. (Illustration No. 3.) Near the front on the left side frame are three holes in the form of a right angle. These are for the bolting of the bracket for the hand guard lever handle and trip mechanism. Bolt this bracket in position and fix hand lever with bolt or pin provided—noting that the dog clutch on lever is free to slide on shaft. Fix the spiral spring at the rear of the dog clutch between lever and frame with the button provided, as mentioned at the beginning of this book under the heading "Hand Guard". The bowden cable (Illustration No. 3A) should be already fixed to the trip plate (Illustration No. 3B) on bracket (Illustration No. 3C).

Next remove cylinder support arm bolt on left-hand side of machine (Illustration No. 12C) and replace with longer bolt provided with bowden cable guide loop and lock up again. (Illustration No. 9.)

Bolt the curved arms to crank levers at the holes provided (Illustration No. 9), paying particular care to see that the guard rails are square and parallel to the platen face.

Pass the cable under main shaft of machine and up the left side, through the guide loop and sleeve on side rail and connect to operating block on outer left side of top rail of guard gate. (Illustration No. 9—top right.)

Tension can now be regulated; this should be done by adjusting the milled nut A, as shown in the top left inset (Illustration No. 9), and should only be sufficient to release trip plate on bracket. (Illustration Nos. 3A and 3B.) If too much tension is given it will cause the mechanism to trip prematurely. Ease tension on cable until trip engages easily when the lever is closed, and the pressure on guard is sufficient to allow clutch to disengage. Turn machine by hand and pull lever inward, *i.e.* to the right, to engage clutch. Then turn flywheel by hand so that the position of the bottom rail of the hand guard gate is about $\frac{1}{2}$ in. above the feeding board in its nearest position. (The guard should just be beginning to rise at this position.)

Test as described earlier (see Illustration No. 4).

Variable Speed Gear

This gear will give an approximate speed range of 800 - 1,800 impressions per hour with a 1,425 r.d.m. motor.

INSTRUCTIONS FOR FITTING

1. First remove the motor from its platforms by releasing the four bolts in the base.
2. Remove platforms and supporting tube by releasing draw bolt which passes through the two legs. (Two spanners may be required.)
3. Slide motor platforms off the tube after releasing them with an Allen key and place this tube in the last set of holes in the legs, bolting it firmly with draw bolt.
4. Remove right-hand front leg-frame bolt and replace with special eye bolt, leaving nut finger tight. (It is not necessary to dismantle the screw shaft assembly. Note that the bottom of the shaft passes inside the rear leg.)
5. Fit motor platforms and lever to the new rail, locking the lever flush with the end of it. Assemble to machine in position of original motor rail, inserting one double spring washer at each end between the legs. Do not over tighten draw bar nuts. (It may be advantageous to slack off the two bolts fixing legs to the motor rail as frame legs may spring in, making it difficult to replace motor rail.)
6. Fit adjustable pulley to motor, then fix motor to platforms as far forward as possible.
7. Place belt in position and allow motor to hang by its own weight free on rail. Check for belt alignment.
8. Wind lever forward until the trunnion nut extension is stopped on the leg. Then raise motor 1" and tighten platform Allen screws.
9. Start motor and operate fully once or twice and finally tighten front leg-frame bolt.
10. Lubricate thread, trunnion and other bearings with spindle oil.
11. The apron will require $2\frac{1}{4}$ " square removed from its bottom right-hand corner.

NOTE: In the case of machines prior to No. 269, it will be necessary first to replace the rear legs with a pair which will be provided. There will then be a redundant motor rail, which together with the redundant legs and sockets should be returned to ADANA (Printing Machines), Ltd., Twickenham, for credit.

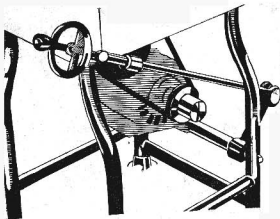


Illustration of Variable Speed Gear